A better way to look for prostate cancer: MRI ultrasound fusion biopsy

There’s only one kind of cancer that is not detected from something you can see or feel, and that’s prostate cancer. A blood test, called the prostate-specific antigen (PSA), identifies nearly 90 percent of prostate cancers—the second leading cause of cancer deaths among men. But once cancer’s suspected, finding its exact location in the walnut-sized prostate gland can be a challenge.

“Unlike other cancers, you don’t see a lesion with prostate cancer,” said Samuel Deem, DO, CAMC Urology. “So when we try to find abnormal tissue, we literally must do a blind biopsy.”

Until now.

Fusion is a process that blends ultrasound and magnetic resonance imaging (MRI) technologies to create a detailed, 360-degree map of the prostate that helps doctors “see” prostate cancer like never before.

CAMC’s 3 Tesla (3T) MRI scanner uses a more technologically advanced magnet that quickly and safely produces high-resolution images of the prostate. Once trouble spots are identified, Deem uses an advanced image-guided stereotactic biopsy system called UnionBi to get tissue samples directly from the suspicious areas.

“This technology advances prostate cancer detection to the same level as every other cancer,” said Deem, who is one of few urologists in the country who is specially-trained to perform prostate fusion biopsy.

Deem recently treated a patient who had an alarmingly high PSA, yet multiple biopsies had all come back negative for cancer.

“The patient had had three biopsies over the course of four to five years, and even though the results indicated no cancer, his PSA kept going up significantly,” Deem said. That’s when the patient’s doctor referred him to Deem, who is fellowship trained in minimally-invasive urologic cancer treatment and in the use of MRI ultrasound fusion biopsy procedures. "When I saw this patient, he had just had his third negative prostate biopsy, but his PSA was extremely high," Deem said.

Deem recommended that the patient have MRI ultrasound fusion biopsy that revealed cancer in an area of the prostate that is not typically biopsied, which is how it had been repeatedly missed.

“The cancer was in a very difficult location, but based on the MRI imaging, it was an easy diagnosis. We were able to successfully biopsy the lesion, and the patient underwent radiation for the cancer.”

Deem said fewer and more accurate biopsies are good news for patients.

“If you’ve been through a biopsy and you’re told you have to have another one, it’s pretty discouraging,” Deem said. “But when I can say, ‘You’ve had this biopsy, but now we see a lesion on the MRI, so now we’re going to biopsy just that spot,’ that makes a big difference because we know we’re going to get the specific area of concern.”

Men who have had a negative prostate biopsy but their PSA continues to rise, or men with a clinical concern for prostate cancer, such as difficulty voiding, voiding symptoms, pain in the perineum or blood in the urine, may be a candidate for MRI ultrasound fusion biopsy. For more information, call CAMC Urology at (304) 388-1900.

Prostate fusion aligns and registers prior diagnostic MRI images (bottom) with real-time ultrasound images (top). The purple outline displays the segmented prostate anatomy from the MRI exam, and the green-lined “targets” indicate the location of the MRI suspicious lesions.

Pediatric cancer care accredited

The CAMC Children’s Cancer Center has been re-accredited by the Children’s Oncology Group (COG).

Celebrations were held in the Children’s Infusion Center and in the pediatric unit at Women and Children’s Hospital Dec. 12.

Comprehensive care is provided by a multidisciplinary team from CAMC and WVU Physicians of Charleston, which includes a pediatric hematologist/oncology physician and nurse practitioner, an infusion center nurse, psychologist, chaplain, child life specialist, dietitian, social worker, physical therapist and pharmacists.

The CAMC Children’s Cancer Center is a member institution of COG, a worldwide cooperative children’s cancer research organization.

The Children’s Cancer Center provides infusions of chemotherapy and other drugs to hematologist/oncology patients, as well as infusion services for patients with other illnesses. These include blood or genetic disorders, as well as gastrointestinal, immune and endocrine disorders.

Bladder Problems?

We can help.

camc.org/PelvicFloor

CAMC today
The Vascular Interventional Advances (VIVA) physicians awarded Dr. Mark C. Bates, MD, FACC, the highest honor: the Leader In Endovascular Education Award (LIVE Award), which recognises leaders in the field of vascular medicine, interventional cardiology, vascular surgery and interventional radiology who have devoted their skills and energy to educating students, post-graduate trainees and their peers. VIVA is an international not-for-profit organisation dedicated to advancing the field of vascular medicine and interventional radiology.

Bates is the director of the CAMC Cardiology Fellowship program and a clinical professor of medicine and surgery at West Virginia University School of Medicine in Charleston. Over the past 25 years, he has performed thousands of cardiac and vascular procedures and contributed to dozens of clinical trials and first-in-man studies. He has authored more than 100 manuscripts and book chapters in his field and was instrumental in the development of the CAMC Vascular Center of Excellence.

Bates has more than 50 issued or pending U.S. patents in various areas of cardiovascular medicine, including embolic protection, intravascular stents, cell therapy, catheter design, guide-wire design, drug-eluting balloons and local drug delivery.

Bates came to CAMC in 1984 as a medical student, where he also completed his internal medicine residency and served as chief medicine resident. During that period, he began exploring new and innovative ways to treat patients, including developing an alternative balloon for coronary angioplasty as a fourth year medical student that was recognized with a USCI innovation award.

Following a cardiology fellowship at University of Kentucky and an endovascular surgery research fellowship at University of Wisconsin, Bates came back to the mountain state in 1993 and continued practicing cutting-edge medicine.

"I’ll never forget placing the first coronary stent in West Virginia back in July 1993," Bates said. “It was humbling to be able to bring some new technologies back home, particularly since my mentors like Drs. Point, Carter, Boland, Bradford and Warren changed my trajectory during the formative years of my training. In fact, I would have not chosen cardiology over surgery had it not been for my experiences and training with Dr. Stafford Warren and the members of the Charleston cardiology community. Looking back on all my accomplishments and the hundreds of patients we’ve operated on all over the world, I can honestly say some of the brightest and best in the field are right here at home.”

Once the coronary stenting program at CAMC was up and running, Bates began to shift his focus toward vascular medicine and intervention. “It was Bill Carter who convinced me to do additional training after cardiology and interventional cardiology fellowships in endovascular surgery and device research,” Bates said. “It’s always been a dream to work in medicine where new and exciting things are happening. There were so many unmet needs for vascular conditions outside of the heart and it was an exciting time.”

Since then, his contributions to vascular medicine have been profound. He helped lead the way in developing techniques for the carotid, abdominal and renal arteries, as well as placing covered stents in aneurysms via catheter access. He pioneered a carotid filter device that significantly reduces the risk of stroke, and this technology is now being used in 60 percent of all carotid stents worldwide.

Throughout his exposure to both the cardiology and vascular fields of medicine, Bates began to recognize a need in the community for comprehensive cardiac and vascular care. “The goal was to get everyone under the same roof so we could really start getting highly specialized in different areas and provide multidisciplinary care in a patient-centered environment.”

What resulted was the CAMC Vascular Center of Excellence, which brought together vascular surgery, cardiology, vascular medicine, internal medicine and neuroradiology working in hand for collaborative, comprehensive care of the patient. The state-of-the-art center opened its doors in 2009.

Bates became involved in the VIVA conference at its inception 14 years ago. The VIVA team wanted to encourage people from different disciplines together to advance the field of vascular medicine and intervention through education and research.

**International conference recognizes local physician for contributions to field of vascular medicine**
Screening program aids in earlier detection of lung cancer

Lung cancer is the most commonly diagnosed cancer among West Virginia residents. The goal of the CAMC Lung Cancer Screening Program is to detect lung cancer early, when it is most treatable. When cancer is found early with low-dose CT screening, patients can more often undergo minimally invasive surgery and have less lung tissue removed. Patients may be eligible for the low-cost screening program if they:

- Are between the ages of 55 and 74
- Have a smoking history equivalent to:
  - Smoking one pack per day for 15 years
  - Smoking two packs per day for 15 years
  - Current or ex-smoker who has quit within the last 15 years
- Are not showing any signs or symptoms of lung cancer
- Have additional risk factors, such as occupational exposures, a personal or family history of lung cancer or prior radiation therapy in the chest area

*This program is dedicated to providing individuals who are at risk for developing lung cancer with individualized, evidence-based care," said Christine Ooki, corporate director of imaging services at CAMC.

“Screening for lung cancer is a new clinical practice that is based on the results from the National Lung Cancer Screening Trial (NLST) and years of clinical research. The NLST demonstrates that, in certain people, a well-organized approach to screening can prevent 1 in 5 deaths from lung cancer.”

The program includes:

- Personalized lung cancer risk evaluation
- Tobacco treatment counseling and treatment for active smokers
- Low dose screening CT scan
- CT scan review and interpretation by an experienced radiologist
- Continuity of care and ongoing monitoring

A physician’s order is required for the screening. Patients who meet the screening criteria will receive a low-dose radiation CT scan. This is a covered service for patients who have Medicare, and some other insurances. This service is offered at the CAMC Imaging Centers located in Kanawha City and at Southridge.

Visit camc.org/lung-screening for lung health resources and full screening criteria or call (304) 388-7033 for more information.

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CGM Health Systems, Inc. 2017
For more information, call the CAMC Cleft Center at (304) 388-2950.

Wyatt Miller was born Nov. 11, 2015. His mother, Sameria Brown, remembers it well.

“He weighed 7 pounds, 10 ounces, and he was 21 and ¾ inches long,” she said. “As soon as he was born, they took him back for an examination. When they brought him to me, they told me he had a cleft palate.”

About one in every 1,500 babies is born with a cleft palate in the U.S. every year. The palate is both the hard and soft part of the roof of the mouth. When the palate is not completely formed, it results in a split-like opening from the roof of the mouth to the nasal, which is called a cleft palate. Similarly, a cleft lip occurs when there is a split in the baby’s lip. Most babies born with a cleft have both a cleft lip and a cleft palate, but they can occur separately.

Cleft lip and palate occur very early, between weeks 6 and week 12 of pregnancy, but what exactly causes the clefts to form is still unknown.

Cleft lip and palate can cause feeding difficulties, ear infections and hearing loss, as well as dental problems. If the palate is not repaired, the child will not have the tools he or she needs to speak correctly. The extent of these issues depends on the condition’s severity. A team of experts that specializes in cleft cases can help patients and families overcome these challenges by providing helpful tools, like special bottles for feeding, reassurance and counseling, as well as performing procedures to treat middle ear infections, strengthen teeth and address other dental conditions.

When a cleft is repaired, the surgery is called a palatoplasty. During the surgery, the hard and soft parts of the roof of the mouth, which are made up of very delicate tissue, are carefully reconstructed. This involves careful dissection then rearranging of the muscle bundles to provide a soft palate that functions properly, allowing the child to develop normal speech.

Traditionally, surgeons performed palatoplasties wearing a pair of glasses that contain magnifying lenses. However, advancing technology has enabled surgeons to perform the surgery using a high-powered microscope that provides more light and magnification. This makes the dissection and reconstruction of the palate easier, and allows the rest of the surgical team to see and better assist the surgeon in the operating room. In addition, the microscope allows the surgeon to maintain a straighter posture to avoid fatigue during the procedure, which can take several hours to complete.

Kloostra is the only surgeon in the state performing microscopic palatoplasty. Wyatt is the fifth patient on whom he has operated using the microscope. It is recommended that surgery be completed around 12 months of age. Wyatt's surgery was completed Oct. 27, 2016, a few weeks before his first birthday. “I was nervous, but everything went well,” Brown said. “Within a couple of days, he was back to his happy, playful self. It’s just been wonderful experience. I highly recommend Dr. Kloostra and his team. I love that he treated Wyatt as his own child.”

"Dr. Horswell and myself are very passionate about children with cleft and facial differences. This is why we’re here in West Virginia, and why the cleft team exists,” Kloostra said. “We want to be able to provide answers. We like to meet with moms before they even have their babies, and if it wasn’t for the CAMC’s Cleft Center, we wouldn’t have the state-of-the-art team that we do today in West Virginia, and we’re not really sure why that is,” Kloostra said.

For more information, call the CAMC Cleft Center at (304) 388-2950.

Wyatt was born with a rare condition called congenital ptosis – an abnormality where the upper eyelids droop more than they should. The drooping is caused by a weakenedlevator muscle, which is the muscle responsible for contracting the eyelid. Because the muscle is not properly developed, the patient cannot open the eyelid normally. If severe enough, it can cause significant vision problems, as in Facemyer’s case.

In some instances, congenital ptosis will go away on its own. However, if ptosis is more severe, patients may need to undergo surgery to fix the problem.

For 16 years, Facemyer struggled with not being able to see as well as his classmates. Despite his restricted vision, he played percussion in the school marching band and participated in ROTC. Finally, after years of struggling and feeling the time was right, he decided to seek help from his doctors.

Initially, Facemyer underwent several cosmetic procedures to try to remedy his condition, but they were not successful. Then he was referred to Hosayin Kadikoy, MD, at CAMC Ophthalmology, who specializes in delicate eyelid surgery. Kadikoy is also one of a select few ophthalmologists skilled in performing a surgical procedure called frontalis muscle suspension to correct severe cases of ptosis.

“Since the eyelid muscle is not working to elevate the eyelid, we couple the eyelid with the frontalis muscle,” Kadikoy said.

For more information, call CAMC Ophthalmology at (304) 388-6620.

Since birth, 16-year-old Cody Facemyer struggled to see the world around him. His eyelids sagged and he was unable to raise them, causing his vision to be severely restricted. Unable to look up, he was forced to tilt his chin up to raise his field of vision.

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Frontalis suspension involves threading a small silicon material between the eyelid and eyebrow to tighten and raise the eyelid. This allows the frontalis muscle that controls the eyebrow to also operate the eyelid.

“Since the eyelid muscle is not working to elevate the eyelid, we couple the eyelid with the frontalis muscle,” Kadikoy said.

For more information, call CAMC Ophthalmology at (304) 388-6620.